

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte VANNI POLETTO
and MARCO MORELLI

Appeal No. 1996-3113
Application 08/099,243¹

ON BRIEF

Before JERRY SMITH, FLEMING, and HECKER, **Administrative Patent Judges.**

HECKER, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the final rejection of
claims 13 through 21. Claims 1 through 12 and 22 were
indicated as allowed in the final rejection, Paper No. 10.

¹ Application for patent filed July 28, 1993.

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The Examiner has withdrawn the rejection of claims 13 through 17, 20 and 21 in the Examiner's Answer, paper no. 16.

Therefore, only the rejection of claims 18 and 19 remains before us. Both amendments after final rejection have not been entered, that includes an amendment proposed in Paper No. 11, and the amendment proposed and included with the Appeal Brief, Paper No. 15.

Appellants' invention relates to controlling the saturation of a bipolar power transistor by sensing the substrate current, and accordingly controlling the power transistor's base current. In particular, in Figure 3, when power transistor T1 operates in saturation, the voltage across sensing resistor R_s (produced by substrate current I_s) exceeds reference voltage V_s . As a consequence, OP1 generates an output current that is fed to an input of the operational amplifier OP which reduces the driving current I_b of transistor T1.

Independent claim 18 is reproduced as follows:

18. A method for controlling saturation of an integrated circuit bipolar transistor in a semiconductor substrate, comprising the steps of:

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providing base current, at a base terminal of said transistor, to achieve a desired current flow between an emitter terminal of said transistor and a collector terminal of said transistor;

continually monitoring substrate current, which flows between said transistor and said substrate; and

reducing said base current whenever said substrate current exceeds a predetermined minimum.

The reference relied on by the Examiner is as follows:

Tatsuya et al. (Tatsuya)² JP 60153204 Aug. 12,
1985

Claims 18 and 19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tatsuya.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the brief, reply brief, answer and supplemental answer for the respective details thereof.

OPINION

² Both the Examiner and Appellants have relied on a copy of the abstract of this patent from Patent Abstracts of Japan (supplied in Appellants' IDS filed as paper no. 6). We shall rely on the same abstract.

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After a careful review of the evidence before us, we agree with the Appellants that claims 18 and 19 are not anticipated under 35 U.S.C. § 102(b) by Tatsuya.

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim. **See *In re King***, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986) and ***Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.***, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). "Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention." ***RCA Corp. v. Applied Digital Data Sys., Inc.***, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984), ***cert. dismissed***, 468 U.S. 1228 (1984), *citing* ***Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983).

Appellants argue on page 9 of the brief that Tatsuya does not continually monitor **substrate current** which flows between

the transistor and substrate. In their reply brief,
Appellants argue:

Most representations of bipolar transistors show only three connections to the bipolar transistor: emitter, base, and collector. (In some cases multiple-emitter or multiple-collector devices have been proposed, and multiple collectors naturally imply the possibility of multiple separate collector currents.) The types of current which are considered in Tatsuya are only the usual three, namely emitter, collector, and base currents (although there are two collector current components, from the two collectors).

By contrast, the present application extensively discusses, and shows how to use, a FOURTH type of current component, namely the substrate current. As extensively discussed in the application (and also shown by the expert testimony), **substrate current is not the same as emitter current, base current, or collector current.** (Emphasis added.)
Appellants have also submitted a Rule 132 Declaration

from Richard A. Blanchard stating:

It is NOT TRUE that "Tatsuya's leaked current to the substrate is continually monitored/generated as the potential across the sensing resistor 26 and that potential is compared with the forward voltage drops of the diode 28." Resistor 26 measures auxiliary collector current, NOT substrate current. Tatsuya deals ONLY with the three basic types of current which are used in normal circuit connections of bipolar transistors, namely base, collector and emitter currents. The current application deals with a fourth type of current, the substrate current. (Paragraph No. 12.)

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Looking at claim 18 we see:

continually monitoring **substrate current**, which flows between said transistor and said substrate; and (Emphasis added.)

The Examiner responds:

However, it can be seen that Tatsuya's leaked current to the substrate is continually monitored/ generated as the potential across the sensing resistor 26 and that potential is compared with the forward voltage drops of the diode 28.
(Answer-page 3.)

In the Tatsuya reference, the "leaked current" to the substrate is seen to be equivalent to the fourth type of current described by Appellant.
(Supplemental Answer)

We agree with Appellants, Tatsuya's collector current C2 is not the same as substrate current, nor is it equivalent thereto. Since Tatsuya does not teach monitoring substrate current, we will not sustain the rejection of claim 18, and likewise claim 19 which is dependent therefrom.

In view of the foregoing, the decision of the Examiner rejecting claims 18 and 19 under 35 U.S.C.

§ 102(b) is reversed.

REVERSED

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JERRY SMITH)	
Administrative Patent Judge)	
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MICHAEL R. FLEMING)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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STUART N. HECKER)
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